

Having described the invention, the following is claimed:

1. A tire parameter sensing system for a vehicle having a plurality of tires, the tire parameter sensing system comprising:

a plurality of tire-based parameter sensing units, each tire-based unit having an associated tire and being configured to receive initiation signals and, in response thereto, to transmit response signals;

a vehicle-based unit for receiving response signals from the tire-based units and for transmitting the initiation signals to the tire-based units; and

a plurality of signal masking devices coupled to the vehicle-based unit, each of the signal masking devices having an associated tire location in which a tire-based unit is located, each signal masking device being actuatable for masking the initiation signals near its associated tire location, the tire-based units only responding to unmasked initiation signals,

the vehicle-based unit controlling the signal masking devices so as to control the associated tire location from which a tire-based unit responds to the initiation signals.

2. The tire parameter sensing system of claim 1 wherein each signal masking devices is a noise source that, when actuated, reduces a signal-to-noise ratio of the initiation signals at the associated tire location to below a predetermined threshold value required for a tire-based unit located in the associated tire location to be responsive to the initiation signals.

3. The tire parameter sensing system of claim 2 wherein each noise source comprises a capacitor and an inductor in series with one another for producing noise when supplied with an alternating current.

4. The tire parameter sensing system of claim 1 wherein each response signal includes an identification portion that identifies the tire-based unit that transmitted the response signal, the vehicle-based unit including means for associating the identification portion of received response signals with the associated tire location having a non-actuated masking device.

5. The tire parameter sensing system of claim 1 wherein the vehicle-based unit includes first and second antennas and a switch for connecting to one of the first and second antennas, the first antenna directing initiation signals along a first path and the second antenna directing initiation signals along a second, different path.

6. A tire parameter sensing system for a vehicle having a plurality of tires, the tire parameter sensing system comprising:

a plurality of tire-based units, each of the plurality of tire-based units having an associated tire and including a receiving portion for receiving an initiation signal, a sensing portion for sensing a parameter of the associated tire, and a transmitting portion for transmitting a parameter signal indicative of the sensed parameter, each of the tire-based units being responsive to a received initiation signal having a signal-to-noise ratio exceeding a predetermined value for transmitting the parameter signal;

a vehicle-based unit including a transmitter for transmitting initiation signals to the tire-based units and a receiver for receiving parameter signals from the tire-based units; and

a plurality of noise sources coupled to the vehicle-based unit and actuatable by the vehicle-based unit for transmitting noise, each of the noise sources having an associated tire-based unit and, when actuated, affecting the signal-to-noise ratio of any initiation signal within a predetermined area relative to the actuated noise source,

the vehicle-based unit controlling initiation of the tire-based units by controlling actuation of the noise sources.

7. The tire parameter sensing system of claim 6 wherein each parameter signal includes an identification portion that identifies the tire-based unit that transmitted the parameter signal, the vehicle-based unit determining which tire-based unit is associated with each noise source and associating the identification portion of parameter signals transmitted by the associated tire-based unit with a location on the vehicle of the noise source.

8. The tire parameter sensing system of claim 6 wherein each noise sources comprise a capacitor and an inductor in series with one another for producing noise when supplied with an alternating current.

9. The tire parameter sensing system of claim 6 wherein the vehicle-based unit includes first and second antennas and a switch for connecting to one of the first and second antennas, the first antenna directing initiation signals along a first path and the second antenna directing initiation signals along a second, different path.

10. A method for determining associated locations on a vehicle of tire-based units of a tire parameter sensing system, the method comprising the steps of:

transmitting an initiation signal from a vehicle-based unit;

controlling actuation of a plurality of signal masking devices during transmission of the initiation signal so that only a tire-based unit located near a first signal masking device responds to the transmitted initiation signal;

receiving a parameter signal from the
tire-based unit responding to the initiation signal;
and

associating the responding tire-based unit
with a location on the vehicle of the first signal
masking device.

11. The method of claim 10 further including the
steps of:

transmitting subsequent initiation signals;
receiving subsequent parameter signals from
the responding tire-based unit; and

associating the responding tire-based unit to
the first signal masking device only after receiving an
identification portion of the responding tire-based
unit a predetermined number of times.

12. The method of claim 10 further including the
steps of:

transmitting a subsequent initiation signal
from the vehicle-based unit;

controlling actuation of the plurality of
signal masking devices during transmission of the
subsequent initiation signal so that only a tire-based

unit associated with a second signal masking device responds to the transmitted initiation signal;

receiving a parameter signal from the tire-based unit responding to the subsequent initiation signal; and

associating the tire-based unit responding to the subsequent initiation signal with a location on the vehicle of the second signal masking device.

13. The method of claim 10 wherein the step of controlling actuation of a plurality of signal masking devices during transmission of the initiation signal so that only a tire-based unit associated with a first signal masking device responds to the transmitted initiation signal includes the step of:

actuating each of the plurality of signal masking devices except the first signal masking device during transmission of the initiation signal.

14. The method of claim 10 wherein the step of transmitting an initiation signal from a vehicle-based unit further includes the step of controlling a switch for connecting to one of first and second antennas.